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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/019,020 | 06/11/2002 | Walter Frisch | R.36040-1 | 2615 |
| 2119 | 7590 | 11/30/2005 | EXAMINER | |
| RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314 | | | NGUYEN, TU MINH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3748 | |

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,020

Applicant(s)

FRISCH ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Applicant's Amendment filed on September 12, 2005 has been entered. Claims 10 and 11 have been amended; and claims 20-27 have been added. Overall, claims 8-27 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent 5,884,475) in view of Moore et al. (U.S. Patent 6,180,925).

Re claims 8 and 20, as shown in Figure 4, Hofmann et al. disclose an apparatus for metering a reducing agent, in particular a urea or a urea-water solution, comprising:

- means (28, 26) for air delivery into a mixing chamber (20),
- means (4, 12, 16, 18) for metered reducing agent delivery into the mixing chamber (20),
- means (34) for forming an aerosol using the components delivered to the mixing chamber (20), and
- means (controller) for metered dispensing of the aerosol into an aerosol line (12),

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wherein the means (28, 26) for the air delivery, the means (4, 12, 16, 18) for the metered reducing agent delivery, and the mixing chamber (20) all being integrated with heating line (46), the air delivery being meterable.

Hofmann et al., however, fail to disclose that the heating line is a block or an element of an electrically conductive plastic.

As shown in Figure 1, Moore et al. teach a heating element for a liquid heating vessel, comprising a dielectric insulating layer such as plastic (lines 27-32 of column 1) and a heating track (4). In the event of relatively high temperature, the plastic melts and causes disconnection of the electrical supply to the heating track. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the heating element taught by Moore et al. in the apparatus of Hofmann et al., since the use thereof would have prevented extremely dangerous high temperature and pressure of the reducing agent due to a failure of the controller to disconnect electricity to the heating element.

Re claims 9 and 21, in the modified apparatus of Hofmann et al., the block or the element is produced from a plastic to which electrically conductive particles (see Moore et al.: heating track (4)) are added.

Re claims 10, 11, 22, and 23, in the modified apparatus of Hofmann et al., the block or the element is embodied with electrodes ((6) in Moore et al.) that are subjected to a voltage.

Re claims 12-15, 24, and 25, in the modified apparatus of Hofmann et al., the means for air delivery comprising an air medium delivery line (26), an air pressure regulating valve (20), an air pressure sensor (not shown but obviously must have), a check valve (20), and a metering valve (20).

Re claims 16-19, 26, and 27, in the modified apparatus of Hofmann et al., the means for reducing agent delivery have a reducing agent delivery line (12), a pump (18), a pressure regulator (20), a pressure damper (pressure equalization line (not shown but mentioned)), a metering valve (20), and at least one check valve (20).

Response to Arguments

4. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are not persuasive.

In response to applicant's argument that the combination of Moore et al. and Hofmann et al. is improper because Hofmann et al. fail to disclose or suggest a mixing chamber where an aerosol consisting a mixture of air and reducing agent is formed (page 9 of Applicant's Amendment), the examiner respectfully disagrees.

As shown in Figure 4, Hofmann et al. provide a pressurized air (28) and a liquid reducing agent (4) into a device (20). Inside the device (20), the pressurized air and the reducing agent come into contact with each other and a mixture of pressurized air and reducing agent is formed. Because of this function, the device (20) is indeed a mixing chamber. Moreover, a contact of a compressible fluid such as pressurized air with an incompressible fluid such as the liquid reducing agent in the mixing chamber causes a shear on the surface of the liquid reducing agent. Such shear is known to cause the liquid reducing agent to atomize into small droplets of liquid. These droplets surrounding by pressurized air are then quickly vaporized into a gaseous state of reducing agent. This action thus generates an aerosol consisting a mixture of air and reducing

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agent inside the mixing chamber (20). Therefore, it is at least obvious to one with ordinary skill in the art that Hofmann et al. disclose a mixing chamber (20) where an aerosol consisting a mixture of air and reducing agent is formed.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

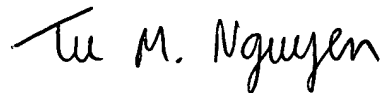
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Communication

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

November 28, 2005

Tu M. Nguyen

Primary Examiner

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